

## **ABSTRACT**

### **METHOD OF SETTING UP MULTI-DIMENSIONAL DDA VARIABLES**

5           A method, an apparatus, and a computer program product  
render a multi-dimensional digital image using raytracing  
in a multi-dimensional space. Variables of a  
multi-dimensional digital differential analyzer (DDA) are  
set up using multiplications only. For each axis of the  
10 multi-dimensional space, a numerator holds the progress  
within a cell along that axis and a denominator describes a  
size condition causing the DDA to step to a next cell. For  
a vector, a denominator of the vector for an axis is equal  
to a delta for a vector component, excluding the component  
15 of said axis, for two dimensions; and a product of deltas  
for all vector components, excluding the component of said  
axis, for greater than two dimensions.